

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Expanding Flexible Use of the 3.7-4.2 GHz Band	)	GN Docket No. 18-122
	)	
	)	
Petition for Rulemaking to Amend and Modernize Parts 25 and 101 of the Commission's Rule to Authorize and Facilitate the Deployment of Licensed Point-to-Multipoint Fixed Wireless Broadband Service in the 3.7-4.2 GHz Band	)	RM-11791
	)	
	)	
Fixed Wireless Communications Coalition, Inc., Request for Modified Coordination Procedures in Band Shared Between the Fixed Service and the Fixed Satellite Service	)	RM-11778
	)	
	)	

**COMMENTS OF RAYTHEON COMPANY IN RESPONSE  
TO THE MAY 3, 2019, PUBLIC NOTICE**

Raytheon Company ("Raytheon"), by its attorney, hereby submits comments in response to the May 3, 2019, Public Notice in the above-captioned proceeding.<sup>1</sup> The International Bureau and Wireless Telecommunications Bureau have invited interested parties to address specific matters regarding the legal rights of space station and receive-only earth station operators to operate in the 3.7-4.2 GHz band ("C-Band") free from harmful interference, the obligations of the Commission to protect such operators, and whether the Commission is authorized to make payments to such earth station operators as an inducement for them to modify or relocate their facilities. As explained herein, while the Commission may need to identify and wrestle with certain such issues depending on the method eventually selected to realign the Band – and

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<sup>1</sup> *Expanding Flexible Use of the 3.7-4.2 GHz Band*, Public Notice, GN Docket No. 18-122, DA 19-385.

Raytheon reserves the right to comment on them in reply comments or another appropriate time – the Commission should maintain an appropriate overarching focus on adopting a framework that, in addition to enabling new terrestrial entrants in the C-Band, protects incumbent earth station operators and entitles them to full reimbursement should they have to modify or relocate their operations.

## **I. RAYTHEON’S INTEREST IN THIS MATTER**

Raytheon is a technology and innovation leader specializing in defense, civil government, and cybersecurity solutions. As Raytheon explained previously in this docket, it supports more than 140 receive-only earth stations that form an important component of the National Oceanographic and Atmospheric Administration’s (“NOAA’s”) Satellite Broadcast Network (“SBN”) and feed the Advanced Weather Interactive Processing System (“AWIPS”). The AWIPS workstations are used by the federal government to process the weather-related data delivered by the SBN in real-time and near-real-time and which are used for operational purposes.<sup>2</sup> These earth stations, in operation in most cases long before April 2018, were registered during the window opened by the Commission in 2018 for that purpose.<sup>3</sup>

The data downlinked in this Band through the SBN to these earth stations constitute a broad range of critical weather, water, and climate information relied upon regularly by virtually all citizens, businesses, governments, and institutions throughout the United States. Specifically, the NOAAPort SBN delivers one-way broadcast communication of NOAA meteorological and environmental data and information to fixed earth station locations in near-real time to NOAA

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<sup>2</sup> See Reply Comments of Raytheon, GN Docket No. 18-122 (June 15, 2018).

<sup>3</sup> See Public Notice, *Temporary Freeze on Applications for New or Modified Fixed Satellite Service Earth Stations and Fixed Microwave Stations in the 3.7-4.2 GHz Band, 90-Day Window to File Applications for Earth Stations Currently Operating in 3.7-4.2 GHz Band*, GN Docket Nos. 17-183, 18-122, DA 18-398 (Apr. 19, 2018).

and external users.<sup>4</sup> There are tens of thousands of products in the C-Band satellite broadcasts, including operational and mission critical forecasts, warnings and other products to the mass media (newspapers, radio stations, TV, etc.), emergency management agencies, and private weather services as well as internal communications within the National Weather Service.<sup>5</sup> Interruptions to these downlinks can have direct and potentially dire impacts to safety of life, property, and national economy.

## II. DISCUSSION

The important weather forecasts, warnings, and advisories described above made possible, in part, by the twelve dozen registered earth stations that Raytheon supports for the government are just one of many applications that earth station operators put the C-Band. From the start, as mentioned in the Public Notice, the Commission has expressed the aim of balancing efforts to make some portion of the C-Band available for new terrestrial wireless uses with accommodation of incumbent Fixed Satellite Service operators and customers in the Band.<sup>6</sup> During the filing window opened in 2018, approximately 15,000 operational earth stations were registered,<sup>7</sup> convincingly demonstrating the heavy use made of the Band in reliance upon the Commission framework that has been in place. Such use represents a considerable amount of

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<sup>4</sup> See <http://www.nws.noaa.gov/om/marine/noaaport.htm>

<sup>5</sup> These products make up approximately 84 gigabytes of essential weather data delivered every day which include the critical watches, warnings, and advisories issued by forecasters. Underscoring the time-critical nature of some operational uses, some immediate warnings for phenomena such as tornados and other severe weather events have delivery requirements measured in seconds and depend upon the data being delivered via the SBN operating in the C-Band.

<sup>6</sup> There is also a small amount of Fixed Service operations in the Band.

<sup>7</sup> See Communications Daily, "C-Band Earth Station Registration Done, Late Disclosure Sought by Stakeholders," Nov. 29, 2018 (citing IBFS as revealing 15,001 earth station registrations were filed during the temporary filing window that closed October 31, 2018).

investment in the C-Band, in the form of earth station and related equipment, software, and affiliated resources, further warranting the earth station's protection by the Commission.

While Raytheon appreciates the competing interests that the Commission must balance in coming to a conclusion about repurposing some portion of the C-Band for so-called flexible use licensees through either a market-based or auction-based approach, or a hybrid of the two, the Commission should not overlook the paramount objective of protecting incumbent operations for those licensees and registrants that wish to continue to use the C-Band. Whatever approach is taken to realign the spectrum – market-based transactions, incentive auction, other type of auction – the public interest requires that it should be done in a way that any modification or relocation of earth station operations to a different part of the Band (or a different band altogether) will be paid for by the new entrants or some other source. The Commission, if need be, should look beyond any statutory *obligations* that it might have to protect incumbent earth station operators, but instead be guided by its broad authority to take actions furthering its public interest objectives that are not inconsistent with the Communications Act. The Commission must also take into account the equities that have been built up by many years of earth station operations in this Band, including capital and operating investments made in reliance on the current framework.

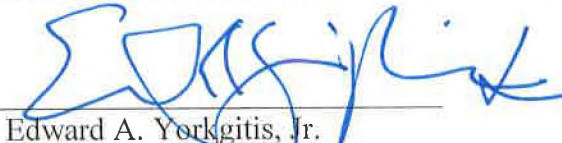
A fundamental issue is whether the Commission possesses the authority and ability to either protect earth station operators or require reimbursement to them for any expenses required to move to new frequencies where they can be ensured protection. To that end, the Communications Act confers on the Commission, as it considers and potentially adopts a new licensing and use framework within the C-Band, sufficient flexibility to adopt mechanisms to ensure both interference protection and compensation for any modification or moves, even assuming for the sake of discussion there is no pre-existing express obligation under the statute

for new entrants to protect receive-only earth station operators or to compensate them (or allow them to participate in an incentive auction).<sup>8</sup>

Of central importance, Section 4(i) of the Act authorizes the Commission to “perform any and all acts, . . . and issue such orders, not inconsistent with the [Act], as may be necessary in the execution of its functions.”<sup>9</sup> Among those functions is the licensing of radio stations and the duties and conditions imposed upon licensees. Within that scope, the Commission has ample authority, regardless of what other steps the Commission takes to repurpose the C-Band, to ensure that earth station licensees are protected from harmful interference and or reimbursed for their costs to move or modify their systems to allow repurposing of the spectrum they use and have invested in under the Commission’s current regulatory framework. For the reasons noted above, Raytheon respectfully contends that the public interest compels the Commission to do so.

Respectfully submitted,

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<sup>8</sup> As mentioned above, Raytheon takes no position at this time, but reserves the right to comment later, on these issues.

<sup>9</sup> 47 U.S.C. § 154(i). *See also* 47 U.S.C. § 303(r) (the Commission shall, as the public convenience, interest, and necessity requires, “[m]ake such rules and regulations and prescribe such restrictions and conditions, not inconsistent with law, as may be necessary to carry out the provisions of this chapter.”).